

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Previously Presented): An apparatus for cutting bone, said apparatus comprising:

an elongate member having a central axis, said elongate member including a tubular portion that extends between a proximal end portion and a distal end portion, said distal end portion including an articulatable head section having a first end and a second end, said second end terminating with at least one planar stop surface, a cutting edge projects from, and is integrally formed with, said at least one planar stop surface, the remainder of said at least one planar stop surface limiting movement of said cutting edge along the central axis, said head section being articulatable about a pivot axis that extends transverse to said central axis; and means for articulating said head section relative to said tubular portion.

Claim 2 (Previously Presented): The apparatus of claim 1 further comprising a shaft member connected to said head section and extending coaxially within said tubular portion, said shaft member and said head section being longitudinally movable relative to said tubular portion.

Claim 3 (Original): The apparatus of claim 2 wherein said shaft member includes a terminal end portion that projects beyond said proximal end portion of said elongate member.

Claim 4 (Original): The apparatus of claim 3 further comprising a cap member that is removably attached to said terminal end portion of said shaft member, said cap member including a first surface that is engageable with said proximal end portion of said elongate member and an oppositely disposed second surface adapted to receive repetitive impacts.

Claims 5-17 (Canceled)

Claim 18 (Previously Presented): A minimally invasive method for cutting through cortical bone in a vertebral body, said method comprising the steps of:

- providing an elongate member having a central axis, the elongate member including a tubular portion that extends between a proximal end portion and a distal end portion, the distal end portion including an articulatable head section with a cutting edge for cutting cortical bone, the head section being controllably pivotable between a plurality of predetermined angular positions about a pivot axis that extends transverse to the central axis;
- placing a cannula through a pedicle of the vertebral body;
- inserting the distal end portion of the elongate member into the cancellous bone in the vertebral through the cannula;

tapping on the proximal end portion of the elongate member to advance the elongate member and cut a first portion of the peripheral wall of the vertebral body with the cutting edge, the at least one stop surface engaging the cortical bone after the cortical bone is cut by the cutting edge to stop further movement of the head section and prevent the cutting edge from undesirably engaging other tissue or bone;

pivoting the head section to a different angular position while the distal end portion is located within the vertebral body; and

tapping on the proximal end portion of the elongate member to advance the elongate member and cut a second portion of the peripheral wall of the vertebral body with the cutting edge.

Claim 19 (Original): The method of claim 18 wherein said step of pivoting the head section includes manually moving a mechanism for pivoting the head section relative to the tubular portion, the mechanism being at least partially located at the proximal end portion of the elongate member.

Claim 20 (Canceled)

Claim 21 (Currently Amended): An apparatus for cutting bone, said apparatus comprising:

an elongate member having a central axis, said elongate member including a tubular portion that extends between a proximal end portion and a distal end portion, said distal end portion including an articulatable head section having a first end and a second end, said second end terminating with at least one planar stop surface, a cutting edge is integrally formed with said at least one planar stop surface and projects from the at least one planar stop surface a predetermined height, the remainder of said at least one planar stop surface limiting axial movement of said cutting edge along the central axis to the predetermined height, said head section being articulatable about a pivot axis that extends transverse to said central axis, wherein said distal end portion of said elongate member further includes a ratchet wheel fixed to said head section for pivotal movement about said pivot axis, said ratchet wheel having a first set of ratchet teeth, said first set of ratchet teeth being engageable with a complimentary second set of ratchet teeth on a distal end of said tubular portion; and

means for articulating said head section relative to said tubular portion.

~~The apparatus of claim 20~~ wherein said means for articulating said head section includes a wire member operatively coupled to said ratchet wheel and having first and second ends extending into said tubular portion, said first and second ends of said wire member being attached to respective first and second levers disposed in said distal end portion of said elongate member, said first and second levers being manually engageable and axially movable relative to each other to cause rotation of said head section about said pivot axis.

Claim 22 (Previously Presented): An apparatus for cutting bone, said apparatus comprising:

an elongate member having a central axis, said elongate member including a tubular portion that extends between a proximal end portion and a distal end portion, said distal end portion including an articulatable head section having a first end and a second end, said second end terminating with at least one planar stop surface, a cutting edge is integrally formed with, and extends along a midline of, said at least one planar stop surface, wherein said cutting edge projects a predetermined height from said at least one planar stop surface to cut the bone, said at least one planar stop surface engaging the bone after the bone is cut by said cutting edge to prevent said cutting edge from cutting the bone a depth greater than the predetermined height to prevent said cutting edge from undesirably engaging other tissue or bone, said head section being articulatable about a pivot axis that extends transverse to said central axis; and

means for articulating said head section relative to said tubular portion.

Claim 23 (Canceled)

Claim 24 (Currently Amended): An apparatus for cutting through cortical bone in a vertebral body, said apparatus comprising:

an elongate member having a central axis, said elongate member including a tubular portion that extends between a proximal end portion and a distal end portion;

said distal end portion including an articulatable head section having a first end and a second end, said second end terminating with at least one planar stop surface, a cutting edge for cutting cortical bone projects from, and is integrally formed with, said at least one planar stop surface, said at least one planar stop surface engages the cortical bone after the cortical bone is cut by said cutting edge to stop further movement of said head section and prevent said cutting edge from undesirably engaging other tissue or bone;

said head section of said distal end portion being pivotable between a plurality of predetermined angular positions about a pivot axis that extends transverse to said central axis, wherein said distal end portion of said elongate member includes a ratchet wheel fixed to said first end of said head section for pivotal movement about said pivot axis, said ratchet wheel having a first set of ratchet teeth, said first set of ratchet teeth being engageable with a complimentary second set of ratchet teeth on said distal end of said tubular portion; and

a mechanism for pivoting said head section relative to said tubular portion.

~~The apparatus of claim 23~~ wherein said mechanism for pivoting said head section includes a wire member operatively coupled to said ratchet wheel and having first and second ends extending into said tubular member, said first and second ends of said wire member being attached to respective first and second levers disposed in said distal end portion of said elongate member, said first and second levers being manually engageable and axially movable relative to each other to cause rotation of said head section about said pivot axis.

Claim 25 (Previously Presented): The apparatus of claim 24 further comprising a shaft member connected to said articulatable head section and extending coaxially within said tubular portion, said shaft member and said articulatable head section being axially movable relative to said tubular portion to permit engagement and disengagement of said first and second sets of ratchet teeth.

Claim 26 (Previously Presented): The apparatus of claim 25 wherein said shaft member includes a threaded end portion that projects beyond said proximal end portion of said elongate member.

Claim 27 (Previously Presented): The apparatus of claim 26 further comprising a threaded cap member that is removably attachable to said terminal end portion of said shaft member to releasably lock said head section in a desired angular position relative to said tubular portion.

Claim 28 (Previously Presented): The apparatus of claim 27 wherein said threaded cap member includes a first surface that is engageable with said proximal end portion of said elongate member and an oppositely disposed second surface adapted to receive repetitive impacts.

Claim 29 (Previously Presented): The apparatus of claim 1 wherein said cutting edge projects from the at least one planar stop surface a predetermined height, the remainder of said at least one planar stop surface limiting movement of said cutting edge along the central axis to the predetermined height.

Claim 30 (Previously Presented): The apparatus of claim 1 wherein the cutting edge extends along a midline of the at least one planar stop surface.

Claims 31-33 (Canceled)